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ABSTRACT

The question "what is good teaching" is answered variously by those that have a stake in the quality of undergraduate teaching. Students define good teaching in terms of the quality of their learning experience. Faculty define it in terms of learning outcomes. Administrators focus on efficiency, while members of the community focus on effectiveness in helping individuals function in adult society. Many investigations have tried to find out what constitutes effective and ineffective teaching, examining practices used in evaluating classroom teaching performance, the validity of student/course evaluations, factors that relate to ratings of teaching effectiveness, and outcomes measures. Studies have revealed that if teacher evaluations are to facilitate teaching improvement, the evaluations must supply faculty with useful information; faculty members must have better alternatives after evaluation; and faculty must be motivated to improve. Every five to ten years a new panacea guarantees good teaching; since the 1940's these have included student-centered teaching, programmed learning, humanistic education, computer-assisted instruction, Personalized System of Instruction, and mastery learning. Other emerging concerns are the effects of the use of teaching assistants and part-time faculty on teaching quality, and ways of measuring the knowledge and skills of graduates of institutions of higher education. (AYC)

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STRATEGIES FOR IMPROVING TEACHING

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by T. Benjamin Massey

Presented at the State Board for Higher Education Conference on Good Undergraduate Teaching, Catonsville Community College, November 10, 1978.

STRATEGIES FOR IMPROVING TEACHING

An Opening Address on the State of the Art

T. Benjamin Massey

The concern we are witnessing over good teaching in the United States, and to an extent worldwide, should not be taken to mean that the quality of instruction currently being offered in higher education is bad. In the area of learning outcomes, most of the criticism has been leveled at primary and secondary education. This is because, although college entrance examinations and records of college success provide a reasonable measure of the skills acquired through secondary school, what is learned at the college level is not as easily measured, especially after graduation.

As judged by the "consumers," there is presently a high level of satisfaction with higher education. Data from student ratings of faculty at the University of Michigan indicate that 90% of the faculty are rated as "excellent" by the majority of their students (McKeachie). Students expressed similar approval at Princeton, where a pilot study indicated that on a 7-point scale (average score 4) the "average" performance of faculty members was rated 5.5.[1]

Perhaps even more important, students also perceive themselves as making progress on major learning objectives. Over 115,000 students at some 80 institutions around the country used the IDEA (Instructional Development and Effectiveness Assessment) evaluation system last fall. When asked to rate their progress on nine learning objectives (factual knowledge, principles and theories, professional skills, methods of the discipline, thinking and problem solving, creative capacities, effective communication,

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personal responsibility, general liberal education, and implications for self-understanding), average student rating of progress on each objective was 3.7 on a 5-point scale.[2]

This is not to say that students cannot be and are not critical of some of their professors and some of their courses. More than a decade has passed, however, since the campus unrest of the 60s. Its legacy--heightened consumerism among students, greater demands for accountability by community representatives such as taxpayers and state legislators--helped to open higher education to public scrutiny and led to positive consequences such as curriculum reform and faculty development. Thus ten years later we are meeting to discuss improving a process which is generally good but could be better.

All college and university constituencies--by that I mean students, faculty, administrators and members of the larger community--have a stake in good teaching. How they define good teaching will, however, differ from group to group. For example:

1. Students are likely to define "good teaching" in terms of the QUALITY of the learning experience they have in class. "Is the course enjoyable?" "Is the instructor stimulating?" "Do I get to participate in class?" Good teaching is loosely translated into "satisfying experience," a judgment that may or may not be related to what, or how much, is learned.
2. Faculty are more likely to define good teaching in terms of LEARNING OUTCOMES. "Do they (the students) know what I (my department) expects of them at the end of this course?" "Have they achieved competency on my objectives?" Faculty are much more likely than students to see curriculum as important to good teaching. Witness, for example, Harvard's faculty Senate's call for a return of a core curriculum. At the College Park Campus the Senate has agreed on a mandatory writing skills course for juniors. Other institutions

have adopted or are debating the merits of "exit examinations."

3. Administrators may focus on the EFFICIENCY of the teaching process. How well are limited resources, both material and human, being used? Can class sizes be increased without adversely affecting educational quality? Are part-time faculty as good as their full-time counterparts? At a time when the tax base for post-secondary education is eroding, as in California's Proposition 13, funding for higher education can be expected to be increasingly competitive with other social needs.

4. Members of the community may measure good teaching by its EFFECTIVENESS in helping individuals function in adult society. "Are their graduates ready to go to work for me?" "Can their graduates read and write?" Prospective students might ask, "Will a professional school accept me if I graduate from this program or college?"

With "good teaching" being assessed from different perspectives, it is a small wonder that there is disagreement on a single definition. One predictable response on the part of faculty, who are most directly affected by the evaluation of teaching, is to point out that until we know what effective teaching is, we should not be making judgments as to what is good or bad. To this prominent educator Kenneth Eble has replied, "What most college teachers are not aware of is the great number of careful scholarly investigations which have tried to find out what does constitute effective and ineffective teaching... Were the results of these investigations at wide variance with one another, the skeptic might find support for his distrust of knowing anything about the subject. But the investigations are not at variance, and whether one is looking for the general qualities of the effective teacher or for more specific characteristics of effective teaching, research studies provide reasonably consistent answers."[3]

Milton Hildebrand adds that "although the concept of effective teaching cannot be exactly delimited, and although there remains much to learn about the psychodynamics of both teaching and learning, still, the concept of effective teaching is more exact than those of...morality...good taste...and many more."[4] Hildebrand points out that the latter are regularly applied to our lives. The one point on which there may be universal agreement is that good teaching is desirable.

Given this premise what do we know about good teaching?

In a recent study of practices used in evaluating classroom teaching performance in liberal arts colleges, Peter Seldin (1975) reported the relative frequency with which various sources of information about teaching effectiveness were used.[5]

1. Chairman evaluation was the most frequent source, followed by
2. Dean evaluation
3. Committee evaluation
4. Colleagues' opinions
5. Systematic student ratings
6. Self-evaluation
7. Scholarly research and publications
8. Informal student opinions
9. Course syllabi and examinations
10. Classroom visits
11. Student examinations performance
12. Enrollment in elective courses
13. Grade distributions
14. Long-term follow-up of students
15. Alumni opinions

Cashin (1976) has argued that at least four of these sources are likely to be invalid and should not be used: enrollment in elective courses; grade distributions; informal student opinions; scholarly research and publications.[6]

Chairpersons, deans, committees and colleagues tend to define effective teaching broadly. Wilson, Dienst & Watson (1973) list research activity and recognition, participation in the academic community, intellectual breadth, relations with students and concern for teaching as the five major indicators.[7]

Student/course evaluations tend to take a much narrower view of teaching effectiveness, limiting it almost entirely to what transpires in the classroom. One summary of research on effective teaching arrived at five sets of variables to describe the quality of teaching: analytic/synthetic approach, organization/clarity, instructor-group interaction, instructor-individual student interaction, and dynamism/enthusiasm.[8]

Although it is clear that students, administrators and faculty have different priorities in making their assessments, the underlying qualities tend to be the same. When a sample of students at Boise State University (Lein & Merz, 1976) were asked what qualities they would seek in appointing new teachers, their top five priorities were:[9]

1. Ability to teach	68%
2. Personality	48%
3. Sensitivity	43%
4. Knowledge of discipline	41%
5. Professional and academic achievements	40%

Two samples of students and one sample of faculty at the University of California at Davis identified the best and the worst teachers of their experience, and agreemen'

among the samples was remarkably close.[10] In other words, members of the academic community tend to agree on the identification of effective and ineffective teachers.

Research is also pinpointing some specific factors that relate to ratings of teaching effectiveness. Centra (1973) found that female faculty members are rated more favorably than their male counterparts in areas involving teacher-student interaction.[11] Women tend to make more comments on papers, show more concern about student progress and make better use of class time. Courses taught by male faculty members were rated as more stimulating and more difficult. In a later study (1976) he found a consistent relationship between student ratings of teaching effectivenss and years of teaching experience. Teachers in their first or second year of teaching receive the lowest ratings. Teachers with 3 to 12 years of experience receive the highest ratings, while those with more than 12 years dropped somewhat in average student ratings of effectiveness.[12] A more recent study (1978) found that graduate teaching assistants received higher ratings than did either assistant or full professors.[13]

It is difficult to link teaching effectiveness ratings directly with student learning. There seem to be indications that good students can learn without (or despite) their teachers while bad students fail even with good teacning. Don Brown at Michigan has gone so far as to say that "By and large there is not much evidence that faculty members are directly responsible for whatever impact colleges have on their students."[14] Until learning outcomes at the post-secondary level can be more accurately measured--only in cases where students go on to graduate or professional school are we really able to assess the effect of a college education, and such students are atypical because of the strict admissions requirements--we must be careful in linking effective teaching with increased learning.

If we accept faculty rating, whether by students, colleagues or other academicians as potentially reliable and valid measures of good teaching, (a growing body of research evidence indicates that they are),[15] and if we value good teaching, provisions must be made for faculty to improve their teaching and thereby their ratings. Bill McKeachie, who has chronicled teaching improvement efforts in the U.S., (1976) sets forth three conditions that are necessary if ratings are going to facilitate teaching improvement.[16]

1. Ratings must supply faculty members with useful information
2. Faculty members should have better alternatives to try after they receive feedback
3. Faculty members should be motivated to improve their instruction

To meet the first condition, ratings should focus on areas over which faculty have control. Ratings should also yield normative data based on acceptable reference groups. One of the surest ways to undermine the reliability of student ratings, for example, is to directly compare instructors of large, required undergraduate courses with those teaching small upper-level seminars.

To meet the second condition, colleges and universities must provide appropriate faculty development opportunities. Teaching skills seminars, microteaching workshops, and individual teaching consultation should be available to those faculty who view their teaching as a perfectible art.

The motivation to improve instruction can be either intrinsic or extrinsic. Centra (1973) found that when instructors' self-ratings were considerably higher than ratings given by students, instructional change was likely to occur. The motivation to improve was tied directly to the amount of the discrepancy.[17] Instructional improvement is also more likely on campuses where teaching effectiveness is an important and recognized

factor in promotion and tenure decisions.

If student performance on examinations becomes a basis for measuring teaching effectivenss, learning outcomes are really being measured. This raises the issue of whether there are certain teaching approaches or styles that are more effective than others in achieving learning outcomes. Before considering the evidence, it is important to distinguish between two types of learning that take place in colleges and universities. One type involves information storage and retrieval, the other the development of several open-ended skills. The former relies mainly on the ability to memorize and to duplicate familiar situations. The latter leads to competence in handling and analyzing unfamiliar and complex situations.[18] McKeachie's (1978) review of teaching approaches suggests that some of the innovations of the past 30 years are more applicable to one than the other type of learning.

McKeachie contends that a new panacea intended to eradicate teaching and guarantee good teaching appears about every 5-10 years.[19] In the 1940's, student-centered teaching was going to replace the time-honored lecture method and improve learning outcomes. Research has failed to show differences in achievement on tests of knowledge when more vs. less structured teaching is compared. Consistent differences favoring student-centered learning were found for retention, problem solving, motivation and attitude change.

In the 1950's, the use of television as an educational tool was initiated. McKeachie reports that follow-up studies have given rather clear-cut results. "Live classes are better than TV for whole courses at the university level. Television is better for goals involving visual identification e.g., in dentistry, in engineering or in science demonstrations." Television is of greatest value in classes where students need to have a clear view of what is happening.

Another '50s innovation was independent study--a technique that would give more

attention to individual students, thus allowing better teaching. Again the results were equivocal. Research data suggest that individual study is effective for good students, those with the motivation and skills needed for learning and evaluating work in a particular field. Poorer students, lacking the motivation and skills, do not benefit from the approach. As a result, across all students independent study is no more effective than "standard" teaching.

The 1950s also witnessed the introduction of teaching machines and programmed learning. Skinner's contributions, which were predicted to revolutionize education, have not fulfilled his expectations. Programmed learning is effective for motivated students needing to learn a specific skill, as in training. However, programmed learning and teaching machines did not prove effective for whole courses, especially those stressing open-ended skills. Linear programs with small steps also proved to be boring for many students.[20]

In the late 1960s, "relevance" became a key word in higher education. Humanistic psychology entered where the behaviorists had failed, introducing such concepts as T-groups and experiential learning. While sensitivity training groups and their counterparts generally achieve positive results in the areas of student motivation and social skills, there is little evidence that indicated the experiences are related in any regular way to cognitive skills or concepts.

More recent innovations that have promised to make teaching better include computer-assisted instruction (CAI), behavioral objectives and P.S.I.- Personalized System of Instruction. For behavioral objectives, a review by Duchastel & Merrill (1973)[21] indicated that formulating objectives and sharing them with students. However, the majority of studies have found no significant effects in learning outcomes. While CAI is successfully being applied in areas like medical training, there is a

paucity of research on computer uses in university level teaching. It might be accurate to say that the jury is still out.

Of the recent innovations, most is known about PSI. As McKeachie noted, there is a good deal of research and it is quite convincing. "PSI is an effective method of teaching most students basic knowledge and students retain the knowledge. Moreover, the goals can include higher cognitive levels as well."[22] Perhaps because of the time investment that faculty must make, perhaps because of other factors, PSI has not caught on widely. In fact, some of its early users are already abandoning it.

In the 1970s, "mastery learning" and "competency-based instruction" have received a great deal of attention. Pat Cross (1978) is only one of many educators who believe that the self-paced, individualized approach, in which student learning is the goal, will be tomorrow's model for higher education.[23] In mastery learning, good teaching will be effective individualization. Evaluation of student performance will be criterion-referenced as opposed to relative (the "bell-shaped" curve).

Mastery learning is not without its critics. McKeachie (1978), observes "When one sets a goal of mastery, one is opposing the common educational objective of helping each student achieve the maximum of his or her potential. Mastery learning suggests that everyone should achieve the same goal."[24] Other research, however, indicated that instruction presented under conditions of mastery learning enables about four-fifths of students to reach a level of mastery attained by less than one-fifth under non-mastery conditions.[25] The value of mastery learning may depend on the type of learning outcome desired. In courses such as mathematics, language and typing, all students would benefit from having mastered certain basic skills. In college curricula, mastery of prerequisites would greatly improve the quality of learning in upper-level course

But teachers eventually want students to go beyond them and learn new things.[26] New learning comes from the open-ended skills; it is not demonstrated by mastery.

Is is fair to say that no single teaching technique can be shown to be best or most effective in producing learning outcomes. Good teaching takes into account what is to be learned, who is to learn it, and all the other contingencies that mediate the learning process. Good teachers are familiar with innovations and know when and how to use them most appropriately.

From the viewpoint of the efficiency of the teaching process, the data on whether part-time faculty are better or worse than their full-time counterparts are unclear. In a recent survey, the Chronicle of Higher Education (January 16, 1978) reported that some part-time faculty have lesser academic credentials than full-time faculty teaching in the same subject. The Chronicle also noted that many adjunct faculty have other jobs that make it difficult for them to keep abreast of the literature in the field.[27] Others have pointed out three major assets that adjunct faculty bring to university teaching. These are academic preparation and professional experience, professional and personal maturity, and professional and community liaison.[28]

Most institutions are applying identical employment criteria in the appointment of full-time and part-time faculty. And adjunct faculty also bring considerable professional experience into the classroom. This is especially true in business and management areas and the technical fields such as law enforcement. The ability to relate theory to experience is one of the most important contributions part-time faculty can make. By making learning relevant, they meet one of the criteria of good teaching.

At a time when the traditional 18-22 year old undergraduate may soon be in the minority to the adult, life-long learner, part-time faculty also serve as mature role models for students planning for non-academic careers.[29]

The third dimension part-time faculty bring to good teaching follows from their professional and community links. Work contacts can provide students with valuable learning experiences that would be difficult to duplicate in a college classroom.

If good teaching is to be equated with the effective use of limited resources we must also look at such factors as class size and the use of graduate assistants. Large classes, a fact of life in many lower level courses, can be effectively taught. Faculty members cannot expect to relate to 200 students as they would to twenty, but recent publications such as the Directory of Teaching Innovations in Psychology (Maas & Kleiber, 1976),[30] and monographs like "Teaching the Large Introductory Course" (Brock, 1976)[31] indicate that learning need not suffer because of faculty-student ratio.

The use of graduate teaching assistants for laboratory sections and discussion groups is another way in which colleges have sought to economize. As I mentioned earlier, Centra's (1976) finding that teachers in their first or second year in the classroom receive the lowest student ratings is not supported by Blount, Stallings & Gupta (1978), who found that graduate teaching assistants teaching undergraduate courses received significantly higher ratings than either assistant or full professors. That factors other than content expertise and professional experience can play a role in effective learning is also borne out by research on peer teaching.[32]

Finally, good teaching must be framed in the context of its usefulness to the larger community. Does a good education (an extension of good teaching?) help individuals function better in adult society? Employment and salary statistics document the important bridge between education and work. Earned and projected incomes, as well as health and happiness, rise as level of education rises. But should we continue to

graduate liberal arts majors, or should good teaching now be directed toward career-oriented specialization? This is a particularly thorny question because of the difficulty of measuring the general knowledge and skills (as opposed to academic achievement) which are supposed to come from liberal arts study.

It is only in the last year or so that the American College Testing Program has developed a set of tests--College Outcome Measures Project (COMP)--that are intended to assess knowledge, skills and attitudes as they are applied to the non-academic world.[33] The battery of COMP tests measures the student's abilities in communication, problem solving, and clarifying values in three general subject areas: social institutions, the arts, and science and technology. By comparing incoming freshmen's scores with those of graduating seniors, colleges and universities will be able in some measure to judge how successful they are in teaching those open-ended skills which elude being measured in mastery learning or computer-assisted instruction. The COMP tests also will be able to evaluate learning outcomes that are not specifically tied to course content.

Several uses are already foreseen for COMP tests.

1. They can indicate what amounts of college credit might be awarded for general educational skills and knowledge acquired through non-academic experience (experiential learning).
2. They can certify students for graduation at institutions that require a demonstration of competence in general education areas.
3. They can screen students or employees for jobs that require general, rather than specific, knowledge.
4. They can screen students for graduate and professional training.

As communities increasingly demand to know what they get for their tax dollars, a test that does not simply measure maturity, but also qualities developed by the college or university experience, is a welcome addition. Studies have already shown that students at vocational-technical schools have lower scores on the COMP battery than college seniors of the same age who had comparable academic scores in high school. With further refinement, the COMP exams may be able to replace the alumni survey that asks, "What did you get out of your college experience?"

In summary, then,

1. Good teachers are probably already teaching at somewhere near peak effectiveness and good students are learning effectively.
2. As educators we cannot afford to assume that the quality of teaching and learning at the post-secondary level is consistently high. There continues to be the need to understand and harness the "good" in good teaching and learning.
3. The question "what is good teaching" is answered variously by the different constituencies that have a stake in the quality of undergraduate teaching. Yet research and evaluations are beginning to yield substantial evidence backing up our own optimism that distinct characteristics of effective teaching as determined by learning outcomes may be identified.
4. Further, we are developing methods whereby faculty in higher education may strengthen their present teaching skills as well as discover new instructional strategies. It is important that these faculty development opportunities be made widely available.
5. In the last decade a new spirit of innovation in instructional technology has produced intriguing alternatives to the more traditional "lecture" method of post-secondary teaching, and we are beginning to accumulate

the data that will tell us how effective these newer modes are. We must, of course, be wary of the "cure-all."

6. We must concern ourselves with the implications of the use of teaching assistants and part-time faculty for the quality of teaching in the college or university setting.

7. And, we must, of course, continue to take responsibility for how successfully we prepare our graduates for the "real world." Data such as that yielded by the College Outcome Measures Project hopefully will give us our directions.

It is not easy to summarize what we know and believe about good teaching. I've mentioned only a fraction of the research data that are now available. From whatever perspective we choose to approach good teaching, I believe we will eventually arrive at the conclusion that we <u>can</u> distinguish between effective and ineffective teaching <u>and</u> that good teaching leads to good learning. There are, in my judgment, a number of fruitful avenues for further work which I have not mentioned, in particular 1) a better understanding of cognitive styles, both teaching and learning 2) the use of students as peer teachers, and 3) programs early in the academic career of students to teach them "how to learn."

I am delighted that participants from so many institutions have come together to explore the "state of the art," the strengths and weaknesses of their present programs that focus on good teaching, and their ideas and models for teaching improvement.

This conference is intended to promote an exchange of ideas, in the hope that those interested in making good undergraduate teaching better will be encouraged to further communicate with each other--so that our shared goal of facilitating student

learning can be realized. Again, thank you for the opportunity to be with you.

Recommended titles:

Professional Development: A Guide to Resources, ed. Gaff et al, 1978, Change Magazine Press, NBW Tower, New Rochelle, NY 10801

Teaching Tips: A Guidebook for the Beginning College Teacher, Seventh Edition, Wilbert J. McKeachie, 1978, D. C. Heath and Company, 125 Spring Street, Lexington, MA 02173.

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[16]Lein, C. D. and Merz, C. M., op. cit.

[17]McKeachie, Wilbert J., "Psychology in America's Bicentennial," American Psychologist, 12 (1976), pp. 819-833.

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[19]Zelby, Leon W., "Good Teaching - A Problem in Education," (undated Manuscript).

[20]McKeachie, Wilbert J., "Teaching - Learning Improvement: The State of the Art," (Keynote address, Fourth International Conference on Improving University Teaching, Aachen, Federal Republic of Germany, July 29, 1978).

[21]Duchastel, P. C. and Merrill, P. F., "The Effect of Behavioral Objectives on Learning: A Review of Empirical Studies," Review of Educational Research, 43 (1973), pp. 53-69.

[22]McKeachie, op. cit. (1978).

[23]Cross, Patricia, "The Growing Schism Between the Practices and Purposes of Higher Education," (Keynote address, Fourth International Conference on Improving University Teaching, Aachen, Federal Republic of Germany, July 26, 1978).

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[26]McKeachie, op. cit. (1978).

[27]"Part-Time Professors on the Increase," The Chronicle of Higher Education, 15 (January 16, 1978) p. 1.

[28]Ernst, Richard J. and McFarlane, Larry A., "Are We Shortchanging Our Students by Using Part-Time Faculty?", New Directions for Institutional Research, 18 (Summer 1978), pp. 89-97.

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